Surly™ Single-Speed Spacer Kit Installation Instructions

Please read all these instructions completely before attempting to install this kit. If you lack mechanical aptitude, don't have the right tools, or can't read or follow these instructions carefully, you are waaaay better off having a professional bike shop do this installation for you. Our trusty legal counsel compels us to point out that if this installation isn't done properly, YOU COULD DIE riding your bike. That would make us very sad.

Our single-speed conversion kit is designed to work on a Shimano® or Shimano-compatible 8-, 9- or 10-speed freehub body. Like other kits of this nature, the Surly conversion kit replaces the stock multi-speed cassette with the cog of your choice (purchased separately) and some spacers. But rather than just sell you a big bag of generic spacers, we spent the time to crunch the numbers and found a way to produce a clean, adjustable, affordable method of performing this conversion that hits all conceivable chainlines without too much fluff. The icing is that we top our kit off with a custom stainless steel lockring that matches the spacer OD, looks great, and like all Surly products, is built to last.

Step 1: Inspect the kit and know what you are installing

Our kit comes with six spacers of varying widths. These spacers, used in conjunction with one splined single-speed cog and assembled in the correct order will replace your cassette, provide perfect chainline, look good, and be the exact overall width to tighten down safely and correctly.

If you are installing this kit with a Surly splined cog (Surly cogs are thicker and stronger than most and are highly recommended), you will use these five spacers to achieve the chainline you need: 2.1mm, 2.5mm, 5mm, 9.5mm, and 12mm.

A sixth 2.5mm spacer is included in the event you are using a thinner, non-Surly cog (such as a Shimano DX) for this installation.

We do not, under any circumstances, recommend using cogs whose design incorporates any type of shifting aid - ramps, twisted teeth, etc. We have found that these cogs will "auto-shift" without warning under the rigors of single-speed use and put you dowwwwn.

Step 2: Remove existing parts as necessary

Remove your cassette or whatever is on the cassette body per the hub manufacturer's instructions.

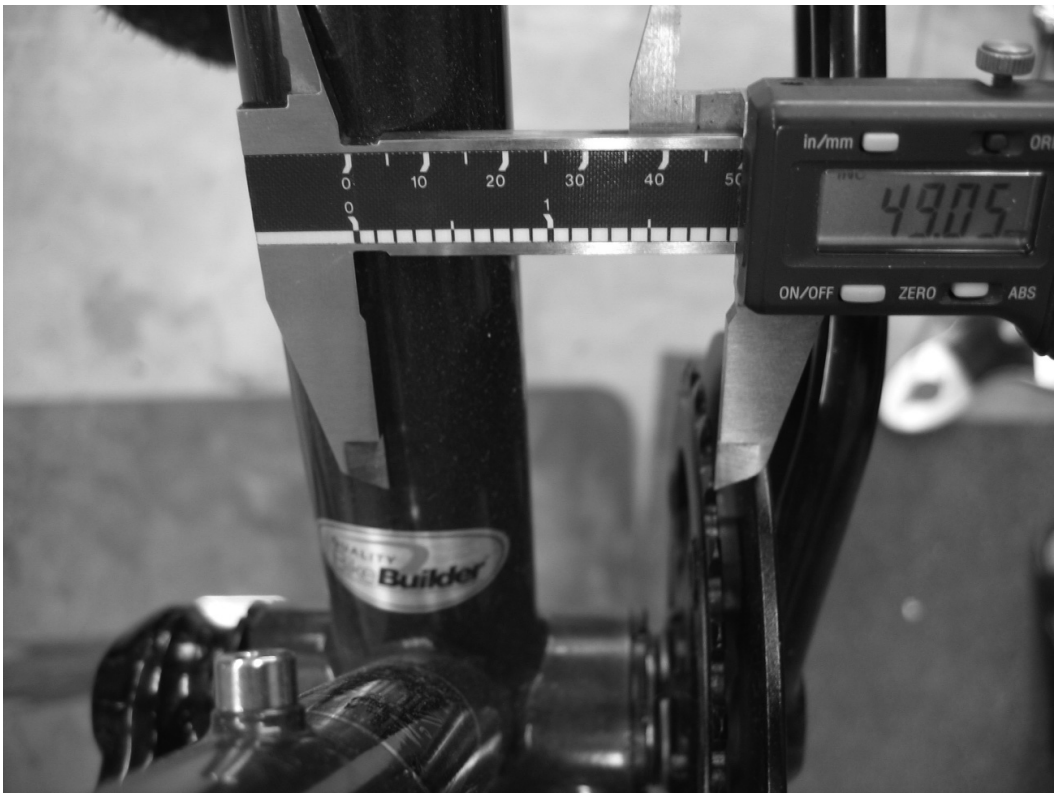
Step 3: Know your chainline

Your chainring, rear cog, and chain should be in the same plane and in perfect alignment with each other to function properly; the relationship of the front chainring to the rear cog should be such that the chain moves from one to another in a straight path that is perfectly parallel to the bicycle's center line. Failure to consider good chainline when setting up your drivetrain can result in excess drivetrain noise, premature wear of components, thrown chains, and wipeouts.

By stacking the provided spacers in one of many configurations, you can easily position the rear cog on the freehub body to achieve perfect chainline. While it is possible to line up the kit's spacers and your cog by estimation and "eyeball" your chainline, doing the job mathematically can be a quicker and more accurate method depending on the tools, reference materials, and skills you have. Either way, we still recommend that you look at the chart in Step 4.

As a number, chainline is the distance from the center of the bike to the center of the cluster of chainrings you are using (in this instance the "cluster" is just one chainring). If you have access to the technical specifications on your crankset, the manufacturer usually provides this information. But it is only useful here if you are a) using the crank manufacturer's specified bottom bracket, b) installing this kit using a crank that was originally built with just one chainring, or c) on a triple crank with one ring installed in the middle position. Because most of us pirate double or triple cranks for use with our single-speed bikes and put the rings in different places, the best way to find your chainline number is to measure it.

To measure it, first make sure the bottom bracket, crank, and chainring are installed and properly torqued on the bike. Find the center of your down tube or seat tube and mark it with tape or a fine-tip pen. Now, simply measure the linear distance from that point to the very center of the chainring teeth. Take care to keep your measuring tool parallel to the bottom bracket axis. This number is your chainline measurement. In the following photo, the chainline is approximately 49mm.



Step 4: Refer to chart

At this point, you've looked up your chainline, measured it, or decided to "eyeball" it. This chart takes your chainline information and shows you which spacers to put where to achieve the chainline you need. Just look for the closest matching number and stack 'em up. A few notes on the chart:

1. Chainlines for road and mountain cranks and hub spacings have been considered/included. See the appropriate column.

2. Surly cogs are 4.35mm wide. All chainlines in the chart are based off of this. Add the extra 2.5mm spacer provided next to your thinner (1.8mm - 2.0mm) cog as necessary, so these calculations will still apply.

3. Surly cogs have the teeth offset to one side, as this gives you the ability to fine-tune the chainline even more. This feature has been included in the chart for your reference.

4. Common road bike and MTB chainlines are in bold for easy finding if you happen to have those numbers from you crankarm manufacturer.

Surly SS Conversion Kit: Chainline & Spacer Chart

all measurements in millimeters (mm)

ZERO SPACERS INBOARD							**chainline**	**chainline**	**chainline**	**chainline**
cog position 1	**spacer position 2**	**spacer position 3**	**spacer position 4**	**spacer position 5**	**spacer position 6**	**total thickness**	**w/ 135mm hub, cog offset inboard**	**w/ 135mm hub, cog offset outboard**	**w/ 130mm hub, cog offset inboard**	**w/ 130mm hub, cog offset outboard**
4.35	2.1	2.5	5	9.5	12	35.45	28	30.35	25.5	27.85
ONE SPACER INBOARD							**chainline**	**chainline**	**chainline**	**chainline**
spacer	**cog position 2**	**spacer position 3**	**spacer position 4**	**spacer position 5**	**spacer position 6**	**total thickness**	**w/ 135mm hub, cog offset inboard**	**w/ 135mm hub, cog offset outboard**	**w/ 130mm hub, cog offset inboard**	**w/ 130mm hub, cog offset outboard ,**
2.1	4.35	2.5	5	9.5	12	35.45	30.10	32.45	27.60	29.95
2.5	4.35	5	9.5	12	2.1	35.45	30.5	32.85	28	30.35
5	4.35	9.5	12	2.1	2.5	35.45	33	35.35	30.50	32.85
9.5	4.35	12	2.1	2.5	5	35.45	37.50	39.85	35	37.35
12	4.35	2.1	2.5	5	9.5	35.45	40	42.35	37.50	39.45

chart continued on next page

Surly SS Conversion Kit: Chainline & Spacer Chart continued

TWO SPACERS INBOARD							chainline	chainline	chainline	chainline
spacer	spacer position 2	cog position 3	spacer position 4	spacer position 5	spacer position 6	total thickness	w/ 135mm hub, cog offset inboard	w/ 135mm hub, cog offset outboard	w/ 130mm hub, cog offset inboard	w/ 130mm hub, cog offset outboard
2.1	2.5	4.35	5	9.5	12	35.45	32.6	34.95	30.10	32.45
2.1	5	4.35	9.5	12	2.5	35.45	35.1	37.45	32.60	34.95
2.1	9.5	4.35	12	2.5	5	35.45	39.6	41.95	37.10	39.45
2.1	12	4.35	2.5	5	9.5	35.45	42.10	44.45	39.60	41.95
2.5	5	4.35	9.5	12	2.1	35.45	35.5	37.85	33	35.35
2.5	9.5	4.35	12	2.1	5	35.45	40	42.35	37.50	39.85
2.5	12	4.35	2.1	5	9.5	35.45	42.50	44.85	40	42.35
5	9.5	4.35	12	2.1	2.5	35.45	42.50	44.85	40	42.35
5	12	4.35	2.1	2.5	9.5	35.45	45	47.35	42.50	44.85
9.5	12	4.35	2.1	2.5	5	35.45	49.50	51.85	47	49.35
THREE SPACERS INBOARD							chainline	chainline	chainline	chainline
spacer position 1	spacer position 2	spacer position 3	cog position 4	spacer position 5	spacer position 6	total thickness	w/ 135mm hub, cog offset inboard	w/ 135mm hub, cog offset outboard	w/ 130mm hub, cog offset inboard	w/ 130mm hub, cog offset outboard
2.1	2.5	5	4.35	9.5	12	35.45	37.60	39.95	35.10	37.45
2.1	2.5	9.5	4.35	12	5	35.45	42.10	44.45	39.60	41.95
2.1	2.5	12	4.35	5	9.5	35.45	44.60	46.95	42.10	44.45
2.1	5	9.5	4.35	12	2.5	35.45	44.60	46.95	42.10	44.45
2.1	5	12	4.35	2.5	9.5	35.45	47.10	49.45	44.60	46.95
2.1	9.5	12	4.35	2.5	5	35.45	51.60	53.95	49.10	51.45
2.5	5	9.5	4.35	12	2.1	35.45	45	47.35	42.50	44.85
2.5	5	12	4.35	2.1	9.5	35.45	**47.50**	***49.85 (50)***	45	47.35
2.5	9.5	12	4.35	2.1	5	35.45	52	54.35	49.50	51.85
5	9.5	12	4.35	2.1	2.5	35.45	***54.50***	56.85	52	54.35
FOUR SPACERS INBOARD							chainline	chainline	chainline	chainline
spacer position 1	spacer position 2	spacer position 3	spacer position 4	cog position 5	spacer position 6	total thickness	w/ 135mm hub, cog offset inboard	w/ 135mm hub, cog offset outboard	w/ 130mm hub, cog offset inboard	w/ 130mm hub, cog offset outboard
2.1	2.5	5	9.5	4.35	12	35.45	47.10	49.45	44.60	46.95
2.1	2.5	5	12	4.35	9.5	35.45	49.60	51.95	47.10	49.45
2.1	2.5	9.5	12	4.35	5	35.45	54.10	56.45	51.60	53.95
2.1	5	9.5	12	4.35	2.5	35.45	56.60	58.95	54.10	56.45
2.5	5	9.5	12	4.35	2.1	35.45	***57***	59.35	54.50	56.85
FIVE SPACERS INBOARD							chainline	chainline	chainline	chainline
spacer position 1	spacer position 2	spacer position 3	spacer position 4	spacer position 5	cog position 6	total thickness	w/ 135mm hub, cog offset inboard	w/ 135mm hub, cog offset outboard	w/ 130mm hub, cog offset inboard	w/ 130mm hub, cog offset outboard
2.1	2.5	5	9.5	12	4.35	35.45	59.10	61.45	56.60	58.95

all measurements in millimeters (mm)

This chart is as basic or involved as you want it to be. As you can see, there are lots of combinations. To simplify, know that a smaller chainline number puts you closer to the center of the bike, and a larger number moves you further out toward the edge of the bike. For example, if you've lined it up and know you need to move the cog outward a few mm to get everything straight, just find a number on the chart that is a few mm larger than what you have and assemble the spacers and cog onto the freehub body accordingly. This information is especially helpful if you are doing the "eyeball" trial-and-error method.

Step 5: Install spacers and lockring

Slide the spacers and cog onto the freehub body in the order determined in steps 3 & 4. Put a little dab of waterproof grease on the lockring threads and knurling, and install the lockring hand-tight. Using a Shimano-compatible cassette lockring tool and torque wrench, tighten the lockring to 30 - 50 N-m (260 - 430 in. lbs.).

Remember that there is no substitute for a good pair of eyes. The numbers can seemingly lie sometimes. Always double-check your chainline by eye. Check that the lockring is properly torqued and that the cog and spacers don't rattle or move around; everything should be tight. Re-organize and re-install the spacers and lockring as necessary.

Step 6: Install everything else and ride

Assemble your bike, lube the drivetrain, pump up the skins, and hit it.

Limited Warranty:

This Surly Single-Speed Spacer Kit is guaranteed to be free from manufacturing defects for one year from the original date of purchase. This means that if we screwed something up in the manufacturing process that resulted in the premature failure of this product, we'll fix it or repair it at our discretion. This warranty is for the original buyer and is not transferable. It should go without saying that we won't even consider your warranty problem without a dated proof-of-purchase.

What this warranty doesn't cover is damage resulting from any sort of "normal" single-speed use, and the inevitable wear and tear resulting from normal use. As with all Surly products, we wouldn't expect you to treat this product gently, but we can't be responsible for the inherent danger to body and property you face each time you hop on your bike. While we purposely build our components with safety and durability in mind and completely stand behind the strength and integrity of our products, we're hip to the "just riding along" phenomenon - and frankly, we're just not having it.

Sorry, the finish isn't covered, nor is any damage that happens to you or your other parts as a result of any failure of our part. Costs incurred to you, such as shop installation time and shipping, are not reimbursable. Lastly, if you modify or neglect this conversion kit we can't be responsible for the product or what might happen to you while you're using it. We hate to spell it out, but hey, it's the 21st century and we live in an all-too-litigious society.

All potential warranties should be returned to where the product was purchased or to your local bike shop. In the unlikely event that this is not possible, call us or write us and we will do our best to get you back in action.

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